


DEPARTMENT OF LANDS AND FORESTS
HON. DR. ALLAN A. WARRACK, P. Ag. MINISTER



Digitized by the Internet Archive
in 2017 with funding from
University of Alberta Libraries

PRECIPITATION OVER ALBERTA MAY - SEPTEMBER 1971

PREPARED BY: E.V. STASHKO, METEOROLOGIST,

ALBERTA FOREST SERVICE

ABSTRACT

Monthly precipitation over Alberta in 1971 for the months May to September, the cumulative precipitation, and the abnormality of the cumulative precipitation are analyzed in detail and mapped in a designated color code for quick visual impression. Written summaries accompany each map.

CONTENTS

- i. Abstract and Table of Contents
- ii. Introduction
 1. Precipitation Summary for May, 1971
 2. Map of Monthly Precipitation - May 1971
 3. Precipitation Summary for June, 1971
 4. Map of Monthly Precipitation - June 1971
 5. Precipitation Summary for July, 1971
 6. Map of Monthly Precipitation - July 1971
 7. Precipitation Summary for August, 1971
 8. Map of Monthly Precipitation - August 1971
 9. Precipitation Summary for September, 1971
 10. Map of Monthly Precipitation - September 1971
 11. Cumulative Precipitation Summary (May - September) 1971
 12. Map of Cumulative Precipitation (May - September) 1971
 13. Comments on Normal Cumulative Precipitation (May - September)
 14. Map of Normal Cumulative Precipitation (May - September)
 15. Summary of Abnormality of Cumulative (May - September) Precipitation
 16. Map of Abnormality of Cumulative (May - September) Precipitation

ACKNOWLEDGMENTS

The assistance of the Cartographic Section of the Technical Division and the typing of Mrs. M. Anderson are greatly appreciated.

INTRODUCTION

The objective of this publication is to provide a detailed analysis and summary of the 1971 May to September precipitation over Alberta with sufficient visual simplicity to ensure maximum detail and yet retain optimum interpretation of the analyzed data. It also provides a compact permanent record of countless precipitation events condensed into a readily usable form for Alberta Forest Service personnel and any other interested agencies whose operations are especially weather-sensitive.

The data analyzed in this publication has been collected from three main sources:

1. About 200 lookouts and ranger stations of the Alberta Forest Service and National Parks.
2. About 25 regular synoptic observing stations of the Atmospheric Environment Service.
3. An additional 100 or more climatological stations, comprised of Canadian District Agriculture stations and voluntary reporting stations.

The data has been carefully screened for errors and completeness. In some instances where a Forestry lookout closed a few days before the end of the month and precipitation was known to occur, an estimated figure was included to complete the precipitation totals.

Statements in the summaries referring to normality or abnormality of precipitation are supported by 30 year normals (1931-1960 period) for the synoptic and climatological network and by shorter 8 year normals (1963-1970 period) for the forested network. Short term normals with apparent deficiencies were discarded to eliminate as much potential error as possible.

PRECIPITATION SUMMARY FOR MAY, 1971

SOUTH BOW RIVER - CROWSNEST FORESTS: Normal May averages are near 3" for these Forests. Precipitation at Castle was 50% above normal dropping to near normal in the Willow Creek to Pigeon Mountain areas.

NORTH BOW RIVER - ROCKY FORESTS: Normal May averages are 2.5". Precipitation was 10% to 25% below normal in north Bow River dipping to 70% below normal in the Alder Flats - Nordegg areas of the Rocky Forest. Brazeau was 40% below normal.

EDSON - WHITECOURT FORESTS: Normal May averages are 2" for lower terrain and 2.5" for the Swan Hills and higher Edson terrain. Precipitation generally was 50% below normal except for 30% below in the Swan Hills and normal at Carrot Creek.

GRANDE PRAIRIE FOREST: Normal May averages are 2.5" for the foothills, 1.5" to 2" for most of the plains, and 1" for the Dunvegan area. Precipitation was 50% below normal in the Torrens - Nose Mountain area plunging to 90% below normal over the Grande Prairie - Goodfare areas. No precipitation (or 100% below normal) fell in the area near Dunvegan. This was the driest May in 30 years!

PEACE RIVER FOREST: Normal May averages are 1" for the Peace River valley and 1.5" for the higher terrain. Extreme variation occurred from valley areas to hilltop areas. While precipitation in the Peace River valley was 70% below normal from Fairview to Peace River to Keg River, the hilltop areas near Doig, Hotchkiss and Notikewin were 50% to 100% above normal.

FOOTNER LAKE FOREST: Normal May averages are near 1" in the Hay River and Peace River valleys and 1.5" to 2" over the higher terrain. Precipitation was 70% below normal from Buffalo Head Prairie to Fort Vermilion and 30% to 50% below normal in the southeastern half of the Forest. Precipitation for the northwestern half of the Forest was normal to 30% above normal.

SLAVE LAKE FOREST: Normal May averages are 1.5" for the lower terrain and 2" for the highest terrain. Precipitation was 50% below normal in most areas. Red Earth and Wabasca areas were a dry 70% below normal and Deer Mountain - House Mountain areas were 30% below normal.

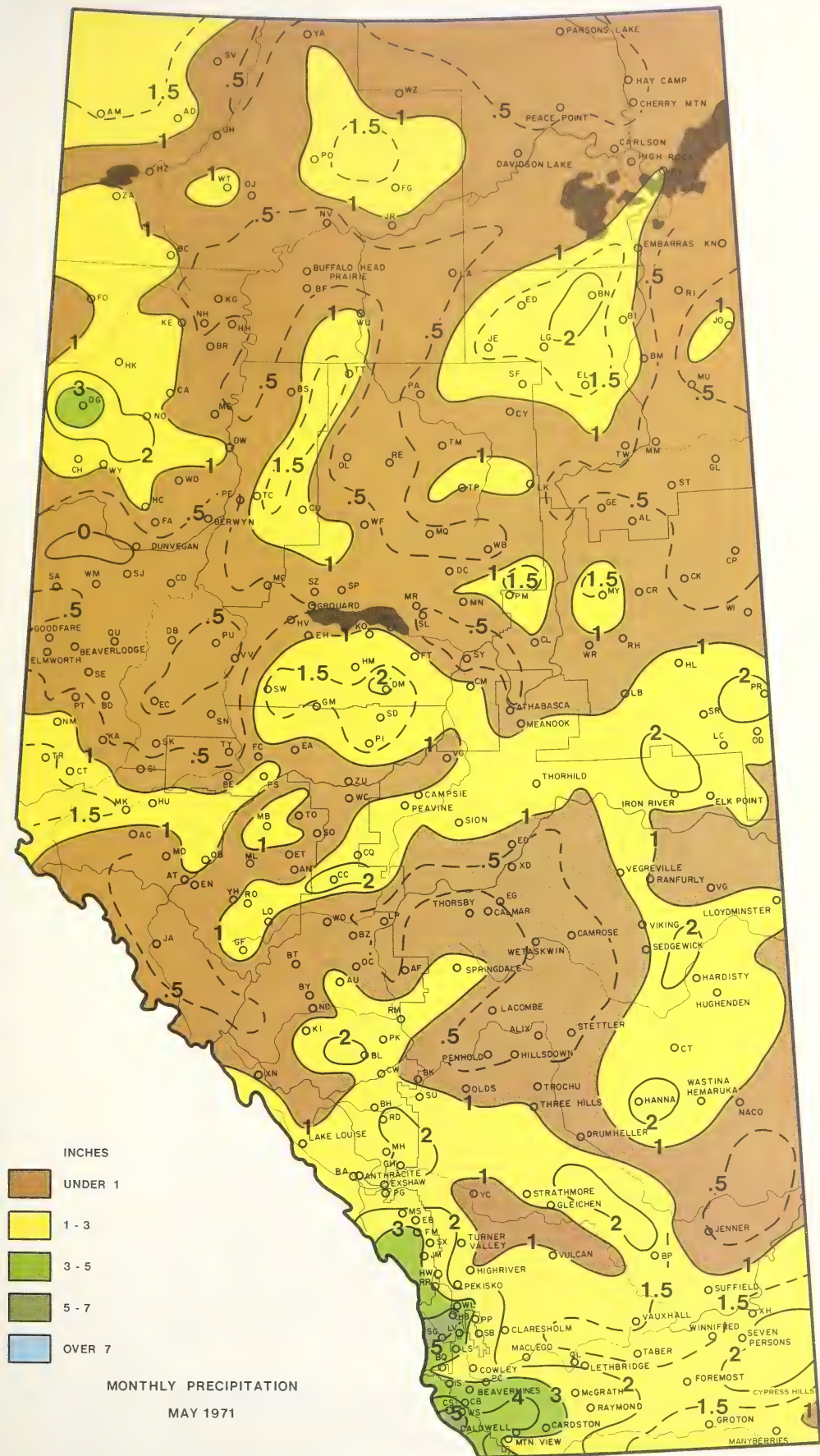
LAC LA BICHE FOREST: Normal May averages are 1.5" for lower terrain and 2" for hilly terrain. Precipitation over the southern tip was near normal to 30% above normal with a sharp decrease northwards to 90% below normal at Cowpar Lake. Forest fires broke out at Pelican Mountain and Winnifred Lake on May 13th and 23rd consuming 10,000 acres in all.

ATHABASCA FOREST: Normal May averages are 1.5" for the Athabasca River valley but drop to 1" over the Fort Chipewyan - Fort Smith areas. Over higher terrain such as the Birch Mountain, Muskeg and Stoney Mountain areas, the normal averages are 2". Precipitation over most areas was 50% to 70% below normal except for a near normal strip from Buckton to Fort Chipewyan. An unusual lightning fire outbreak of 51 fires fanned by high winds occurred on May 13th consuming 6,000 acres in all.

AGRICULTURAL PLAINS AREA: Normal May averages are 1.5" over the lower eastern plains and 2" over the rising western plains from Cardston, Calgary to Leduc. Precipitation was 70% below normal for Edmonton - Camrose - Calgary triangle and a bone dry 90% below normal at Red Deer - Lacombe. Dryness was less severe eastward with 50% below normal at Vegreville to 10% below at Lloydminster. Coronation, Hanna, Wastina - Hemaruka were 50% to 70% above normal but Naco and Jenner dropped off to near normal with a 50% below normal area just east. Lethbridge, Medicine Hat and Cypress Hills were near normal with Pincher Creek rising to 50% above normal and Cardston - Mountain View to 50% above normal.

ALBERTA WET SPOT: 4.8" at Castle Ranger Station, Crowsnest Forest

ALBERTA DRY SPOT: Trace at Rycroft



PRECIPITATION SUMMARY FOR JUNE, 1971

SOUTH BOW RIVER - CROWNEST FORESTS: Usually June is by far the wettest month of the year in these Forests. Normal averages range from 4" in the lower valley terrain to 6" in the higher foothills or mountain terrain. In 1971 the heavy upslope June rains failed to materialize dropping Crownsnest 50% to 70% below normal. Southern Bow River was 30% to 50% below normal.

NORTH BOW RIVER - ROCKY FORESTS: Normal averages range from 4" for lower valley terrain to 5" for higher foothills and mountain terrain. Precipitation was normal in northern Bow River and Clearwater areas, but wet in central and northern Rocky where it ranged from 30% above normal near Rocky Mountain House to 100% above normal near Wolf Lookout.

EDSON - WHITECOURT FORESTS: Normal averages for Whitecourt Forest range from 3" over lower terrain to 3.5" over the Swan Hills. Normal averages for Edson Forest are 3" but vary imperfectly with elevation from 2" to 4". June 1971 was extremely wet in both Forests. Precipitation ranged from 100% to 250% above normal, wettest at Goose Mountain and Mayberne Lookouts where 11.9" and 11.5" were recorded. Swollen rivers, creeks and saturated soil set the stage for extensive July flooding.

GRANDE PRAIRIE FOREST: Normal averages range from 2.5" for the lower plains areas to 3.5" for the higher foothills terrain. June 1971 was a record wet month and precipitation ranged from 100% to 250% above normal.

PEACE RIVER FOREST: Normal averages are 2" for the Peace River valley and 2.5" for higher terrain. June was wet with precipitation over most areas 100% to 150% above normal but as high as 250% above normal in the McLennan area.

FOOTNER LAKE FOREST: Normal averages are 1.5" for lower terrain and 2.5" for higher terrain. Extreme variation occurred with the south 50% to 100% above normal, the centre near normal, and the north very dry at 50% to 75% below normal.

SLAVE LAKE FOREST: Normal averages are 2" for lower terrain and 3.5" for higher terrain. June 1971 was extremely wet with most areas 100% to 250% above normal. Swollen rivers, creeks, and saturated soil set the stage for extensive July flooding. Only the northeast corner was down to 25% above normal. House Mountain Lookout was wettest with 12.7" recorded.

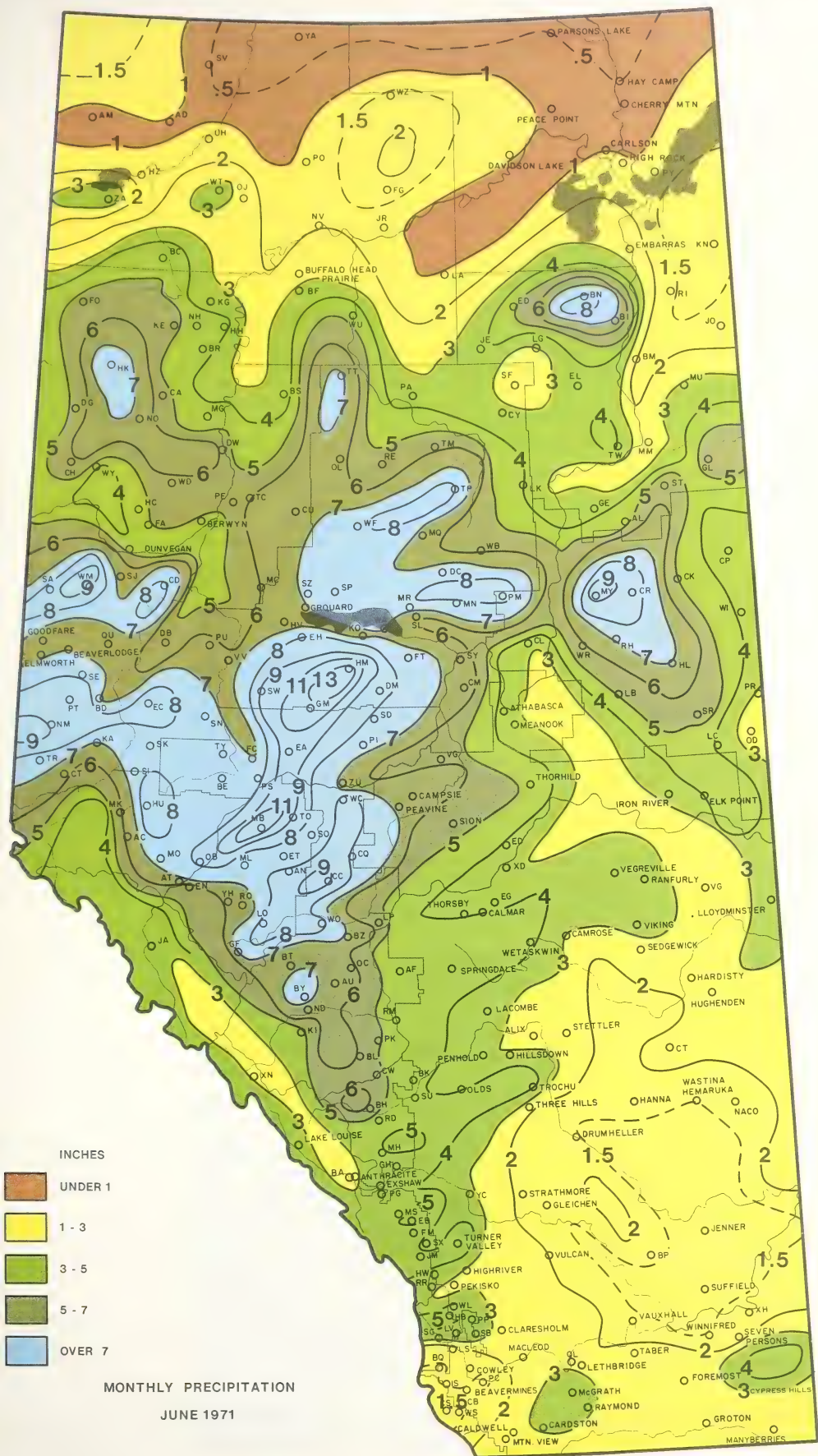
LAC LA BICHE FOREST: Normal averages are 2.5" for lower terrain and 3.5" for higher terrain. June was very wet with most areas 100% to 200% above normal. Only Cold Lake, Primrose and Calling Lake stayed near normal.

ATHABASCA FOREST: Normal averages are 2" for the Athabasca River valley and 3" for the highest terrain. June was very wet over the highest terrain ranging from 100% to 200% above normal. Over southern lower terrain precipitation was 25% to 50% above normal but dropped off sharply northward to 30% below normal at Fort Chipewyan and 75% below normal near Fort Smith.

AGRICULTURAL PLAINS AREA: The lower eastern plains normally average 2.5" while the rising western plains normally average 3.5". Precipitation over the western plains from Cardston - Calgary to Edmonton was near normal but the eastern plains were mostly dry, ranging from 30% below normal to as much as 50% below normal in the Drumheller and Suffield areas. Manyberries, Cypress Hills and Lethbridge were near normal. Vegreville, Lloydminster and Elk Point rose to 25% above normal while Peavine and Thorhild were 100% above normal. On June 25th, a tornado shattered Wostock (50 miles northeast of Edmonton) and extensive golf ball hail battered the central plains around Red Deer.

ALBERTA WET SPOT: 12.7" at House Mountain Lookout, Slave Lake Forest

ALBERTA DRY SPOT: 0.3" at Yates Lookout, Footner Lake Forest



PRECIPITATION SUMMARY FOR JULY, 1971

SOUTH BOW RIVER - CROWSNEST FORESTS: Normal averages are 1" for the Crowsnest Forest and 2" for the southern Bow River Forest. Precipitation was 50% to 75% above normal in Crowsnest, dropping off northward to near normal from Highwood to Sheep Ranger Station, and dropping sharply to 50% below normal at Pigeon Mountain and Moose Mountain.

NORTH BOW RIVER - ROCKY FORESTS: Normal averages are 4" for lower valley areas and 5" for foothills terrain. Averages over the mountains to the west drop off ranging from 3" to 4". Precipitation over northern Bow River and western Rocky was 50% below normal but rose sharply eastward to 50% above normal in eastern Rocky.

EDSON - WHITECOURT FORESTS: Normal averages are 4" for lower terrain and 4.5" to 5" for higher terrain. Normal averages in the mountains of westernmost Edson Forest drop off to 3". July 1971 was very wet with precipitation generally 100% above normal but ranging from 50% above to 150% above normal. Swollen rivers, creeks and saturated soil led to extensive flooding in the Swan River, Paddle River and Freeman River settlements. Bridges collapsed, cattle drowned and stranded people required evacuation.

GRANDE PRAIRIE FOREST: Normal averages are 3.5" for the foothills, 2.5" near Grande Prairie, 3" from Goodfare to Codesa, and 2" near Dunvegan. July 1971 was mostly wet ranging from 50% to 100% above normal. The extreme northern portion near Dunvegan, however, sharply dropped off to 25% below normal.

PEACE RIVER FOREST: The Peace River valley normally averages 2.5" with 3.5" over most of the higher terrain except for 4.5" over the Hawk Hills. Precipitation over most of the Forest was 25% to 50% below normal except for 35% above normal at Notikewin and McLennan.

FOOTNER LAKE FOREST: The Peace River valley and lower terrain normally average 2.5" and the highest terrain 4.5" to 5". Most of the Forest was very dry ranging from 50% to 75% below normal and setting the stage for a stubborn 50,000 acre fire ignited by lightning in early August.

SLAVE LAKE FOREST: Normal averages are 3" for lower terrain and 4.5" to 5" over the highest terrain. Southern Slave was wet at 50% above normal and serious flooding struck Kinuso town as the Swan River overflowed. Northern Slave was dry, ranging from 25% to 50% below normal.

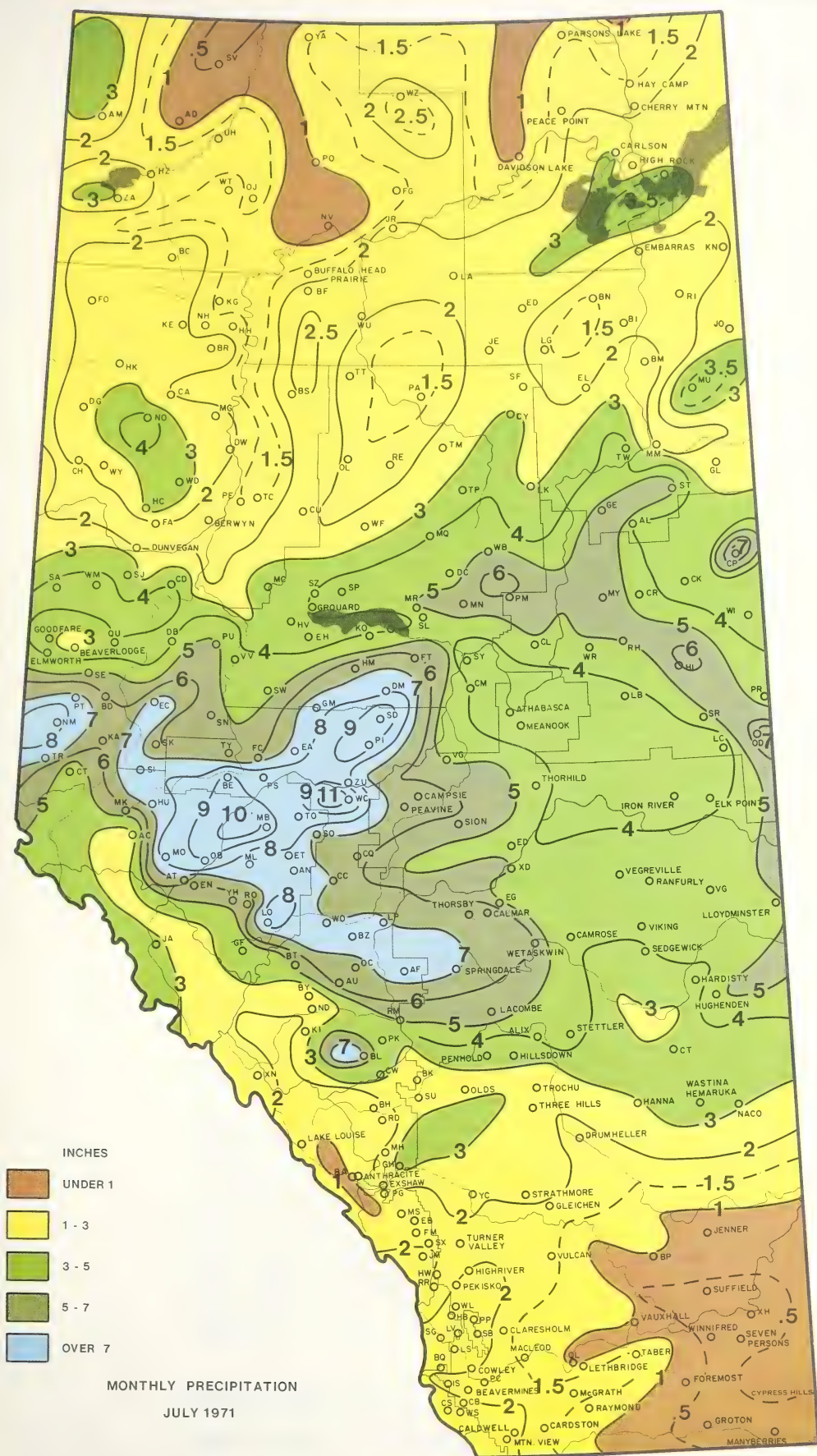
LAC LA BICHE FOREST: Normal averages are 3" for lower terrain and 4.5" to 5" for the highest terrain. Precipitation was near normal over the northeast half of the Forest and 35% above normal over the southwest half. Two wet spots of 100% above normal occurred at Cowpar and Cold Lake.

ATHABASCA FOREST: Normal averages are 3" for the Athabasca River valley except 2" near Fort Chipewyan - Fort Smith areas. Higher terrain normally averages 4.5". Birch Mountain area and Athabasca River valley were dry, ranging from 25% to 50% below normal. Grande and Stoney Mountains were 25% above normal. A wet spot at Fort Chipewyan was 95% above normal, but the Fort Smith area dipped drastically to 50% below normal.

AGRICULTURAL PLAINS AREA: Normal averages increase from 1.5" from Cardston to Brooks to 2" from Strathmore - Drumheller to Wastina - Hemaruka to 3" from Red Deer to Vegreville to 3.5" at Thorsby. The northwestern half of the plains were wet and the southeastern half dry. Wetaskiwin, Hughenden and Lloydminster were 100% above normal while Edmonton, Vegreville and Thorhild were 50% above normal. Drumheller, Olds, Gleichen and High River areas were normal. Pincher Creek and Cardston areas were 25% above normal. The dry southeast corner including Brooks, Jenner, Suffield, Lethbridge and Vauxhall was 50% below normal dipping further to 75% below normal in Medicine Hat and Cypress Hills. Over the northern plains alternately cool, wet and warm, dry periods spawned an explosive population of tenacious mosquitoes to everyone's especial annoyance. A severe hailstorm on July 23rd in the Red Deer - Calgary areas devastated an estimated \$10,000,000 tearing down large trees and walls of brick buildings.

ALBERTA WET SPOT: 11.1" at Whitecourt Lookout, Whitecourt Forest

ALBERTA DRY SPOT: 0.4" at Medicine Hat



PRECIPITATION SUMMARY FOR AUGUST, 1971

BOW RIVER - CROWSNEST FORESTS: Normally this is a very dry summer month with averages of 1.5" in the Crowsnest Forest and 2" in the Bow River Forest. In 1971 precipitation dropped 25% to 50% below normal making fire hazards critically high.

ROCKY FOREST: Normal averages are near 3". August of 1971 was extremely dry with precipitation mostly 75% to 95% below normal. Violent baseball hailstones punctured oil company tin roofs near Wolf Tower on August 7th.

EDSON - WHITECOURT FORESTS: Normal averages are 3" for the lower terrain rising to 4.5" over higher terrain except for a drier 3" over the mountainous Chinook belt of westernmost Edson Forest. Precipitation was 25% below normal in the Whitecourt Forest but a dry 50% to 75% below normal in the Edson Forest. Vicious storms with golf ball to baseball hail battered Whitecourt particularly on August 7th with an estimated \$3,000,000 damage to the town and vicinity.

GRANDE PRAIRIE FOREST: Normal averages are 4" for the higher foothills terrain decreasing to 2" over most of the plain with the driest 1.5" averages near the Dunvegan area. Most areas were dry with precipitation 25% to 50% below normal, although a wet patch over Grande Prairie town gave 25% above normal.

PEACE RIVER FOREST: Normal averages are 1.5" for the Peace River valley and 2.5" for the higher terrain. Extreme variation occurred with precipitation 50% below normal for the southern Peace River valley increasing sharply northwards to 100% above normal in the higher terrain near Hotchkiss - Chinchaga Lookouts but tapering off to near normal in the Fontas - Keg Lookout areas.

FOOTNER LAKE FOREST: Normal averages are 1.5" for the Peace River valley and lower terrain and 2.5" for the higher terrain. Although precipitation in the southeast corner was 25% to 50% above normal and 70% above normal at Fort Vermilion, it dropped off very sharply, ranging from 50% to 75% below normal in the northern half. Here a 50,000 acre forest fire with deep ground fires near Yates defied effective control.

SLAVE LAKE FOREST: Normal averages are 2" for lower terrain and 4" for the highest terrain over the southern half of the Slave Lake Forest. Over the northern half of the Forest, normal averages are 1.5" for lower terrain and 2.5" for higher terrain. Most of the Forest was dry with precipitation 25% to 50% below normal. The only areas near normal were the Talbot Lake - Panny area and a narrow strip from Deer Mountain - Slave Lake to Wabasca.

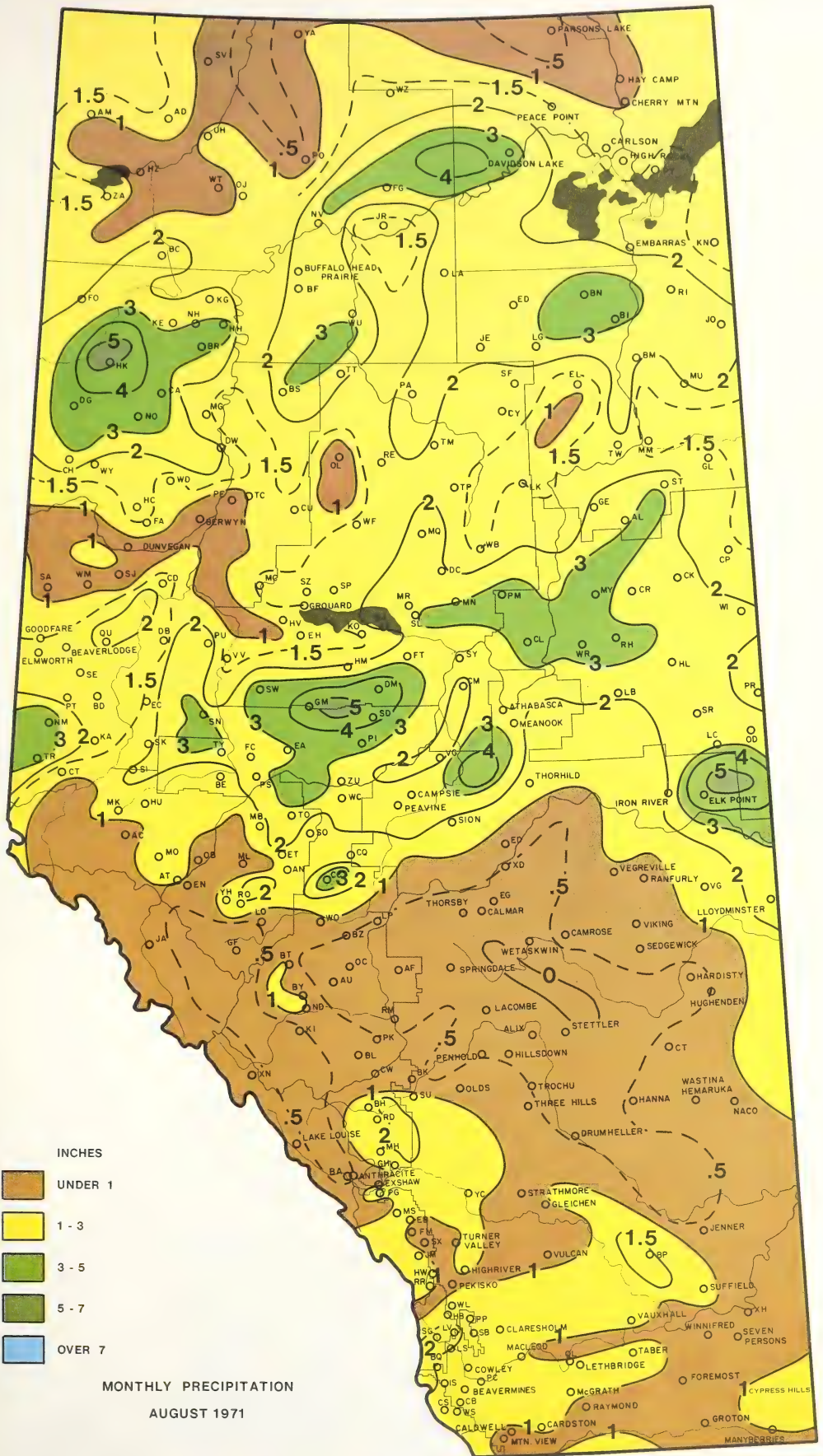
LAC LA BICHE FOREST: Normal averages are 2.5" for lower terrain and 3.5" for highest terrain. Precipitation was near normal for one half of the Forest. Calling Lake and Wandering River areas were 25% above normal but Cowpar Lake, Heart Lake, Lac La Biche, Primrose and Cold Lake were 25% to 50% below normal.

ATHABASCA FOREST: Normal averages generally are 2" for lower terrain and 3" for higher terrain. The northernmost tip from Fort Chipewyan to Fort Smith normally averages 1.5". The southern half and extreme northern tip of the Forest ranged from 25% to 50% below normal but the Birch Mountain to Fort Chipewyan area had 25% to 50% above normal precipitation.

AGRICULTURAL PLAINS AREA: Normal averages are 1.5" from Cardston - Taber to Medicine Hat, 2" from High River - Drumheller to Wastina - Hemaruka, and 2.5" from Red Deer - Edmonton to Camrose - Vegreville to Thorhild - Elk Point. Most of the central plains were parched, anywhere from 50% to 95% below normal. The driest areas were Stettler and Wetaskiwin with 95% below normal precipitation. Further north, Athabasca - Thorhild - Iron River areas were only 25% below normal while the southernmost plains were generally 25% to 50% below normal. The exceptions were Manyberries and Vauxhall - Taber areas (both normal) and one wet spot (Elk Point) with 100% above normal precipitation. A severe hailstorm on August 3rd caused \$1,500,000 estimated damage to Morinville, only 10 miles north of Edmonton.

ALBERTA WET SPOT: 4.9" at Hotchkiss Lookout, Peace River Forest
4.9" at Elk Point

ALBERTA DRY SPOT: 0.1" at Wetaskiwin



PRECIPITATION SUMMARY FOR SEPTEMBER, 1971

BOW RIVER - CROWSNEST FORESTS: Normal averages for the entire area are 2". September was a wet month in the Crowsnest Forest ranging from 25% to 100% above normal. This dropped off to near normal in the Bow River Forest. Ten to 25 inches of wet snow fell in the last few days of the month.

ROCKY FOREST: Normal averages are 2" for lower terrain and 2.5" for higher terrain. Precipitation over the Forest was normal in the centre, 25% above normal in the north, and 25% above normal in the south.

EDSON - WHITECOURT FORESTS: Normal averages in the Edson Forest are 2" for lower terrain and 3" for higher terrain. Normal averages in the Whitecourt Forest are 1.5" to 2" for lower terrain and 2.5" for higher terrain. September was unusually wet and precipitation ranged from 25% above normal to 100% above normal for most areas to 200% above normal for Tom Hill Lookout. Nineteen inches of heavy wet snow fell on Yellowhead Lookout in the last week of September.

GRANDE PRAIRIE FOREST: Normal averages are 1.5" for the lower terrain and 2" to 2.5" on higher foothills terrain. September was extremely wet with precipitation over most areas 100% to 300% above normal. Nose Mountain Lookout ran 350% above normal. Only the northernmost tip of the Forest from Spirit River to Dunvegan was dry, dropping off sharply from normal to 50% below normal along the Peace River valley. In the last week of September upslope circulation dumped persistent heavy wet snowfalls particularly on the foothills terrain where Snuff Mountain recorded 15" and Nose Mountain 45"!

PEACE RIVER FOREST: Normal averages are 1.5" for the Peace River valley and 2.5" for the higher terrain. Most of the Forest had near normal precipitation. The southern Peace River valley was 25% to 50% below normal and the northern tip from Naylor Hills to Keg River and Fontas was 25% to 100% above normal.

FOOTNER LAKE FOREST: Normal averages are 1.5" for lower terrain and 2" for higher terrain. The centre of the Forest was wet, 100% to 200% above normal. The southeastern corner was 50% above normal but the northern extremities near Steen and Yates were 25% to 40% below normal.

SLAVE LAKE FOREST: Normal averages are 1.5" for lower terrain and 2.5" to 3" over higher terrain. Precipitation over most of the Forest was 25% below normal although at Doucette it was 50% below normal and at Talbot - Panny - Chipewyan Lake areas it was 25% to 80% above normal.

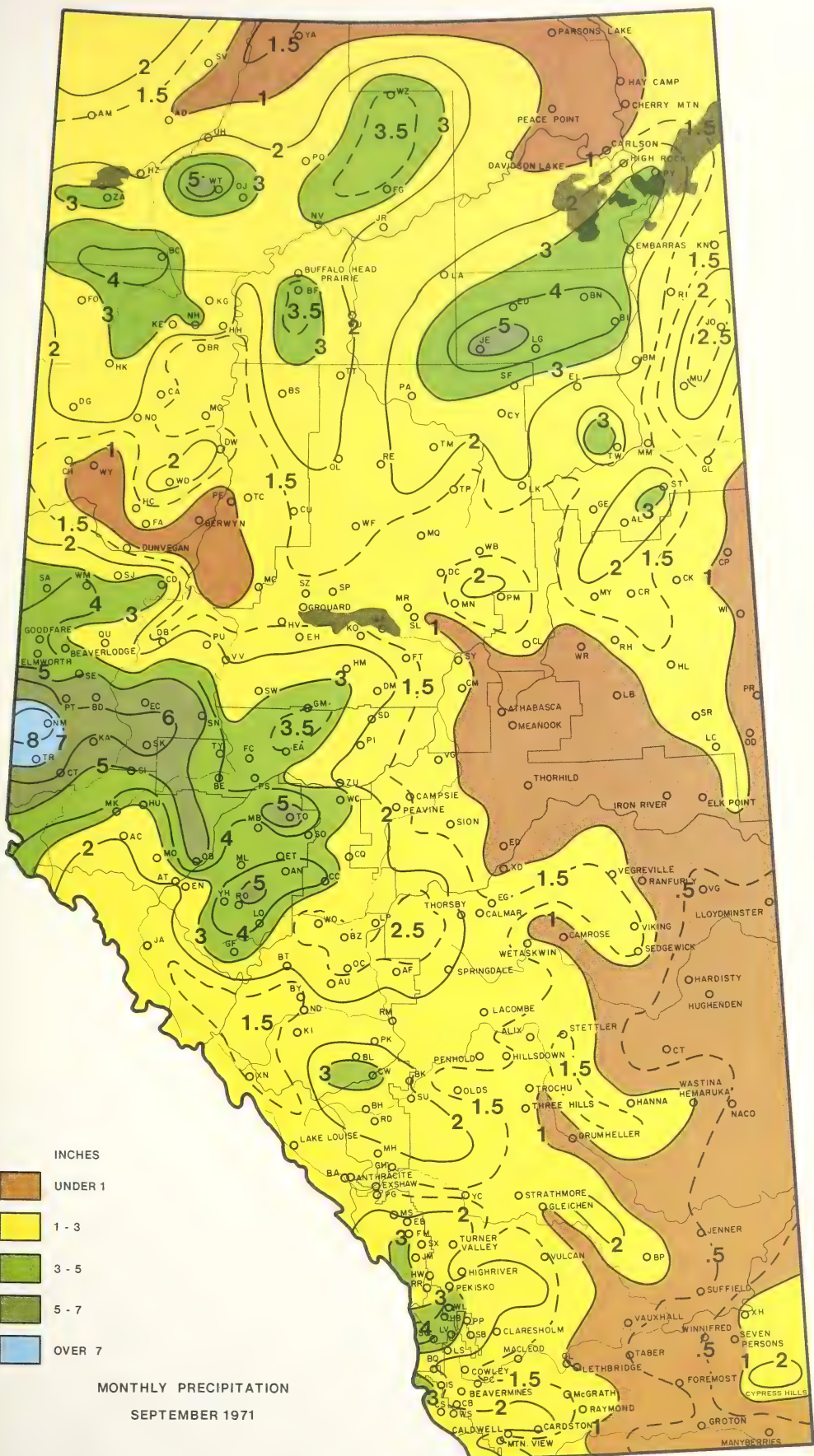
LAC LA BICHE FOREST: Normal averages are 1.5" to 2" for lower terrain and 2.5" for higher terrain. September was dry with most areas 50% below normal, but ranging from 25% below normal to 75% below normal.

ATHABASCA FOREST: Normal averages are 2" for the Athabasca River valley and 3" to 3.5" for the highest terrain. The northern tip from Fort Chipewyan to Fort Smith normally averages 1.5". Some areas were dry and others were wet. While a strip from the Birch Hills to Fort Chipewyan had 50% to 100% above normal precipitation, the remainder of the Forest was 25% below normal except near normal at Fort McMurray, Gordon Lake and Muskeg.

AGRICULTURAL PLAINS AREA: Normal averages are 1" for the Drumheller and Milk River areas and 1.5" for the remainder of the plains. The eastern plains were very dry, but the western plains were normal to above normal. Except for one patch of normal precipitation at Vegreville and another at Wastina - Hemuraka, the eastern plains area from Manyberries - Foremost - Suffield - Naco - Hughenden - Vermilion to Thorhild was 70% below normal. Near normal precipitation occurred at Peavine, Thorsby, Lacombe, Gleichen and Brooks. From Calgary to Cardston most areas were 25% to 50% above normal. Olds and Pincher Creek were drier patches and 25% below normal. Edmonton was 35% below normal but Calgary was 15% above normal. A narrow strip from Red Deer to Drumheller was 25% above normal.

ALBERTA WET SPOT: 8.2" at Nose Mountain, Grande Prairie Forest

ALBERTA DRY SPOT: 0.2" at Waskatenau



MONTHLY PRECIPITATION
SEPTEMBER 1971

SUMMARY OF CUMULATIVE (MAY-SEPT.) PRECIPITATION, 1971

One glance at the 1971 cumulative precipitation pattern shows three major areas of radical precipitation differences:

1. the parched far north
2. the very wet middle
3. the parched southeast corner

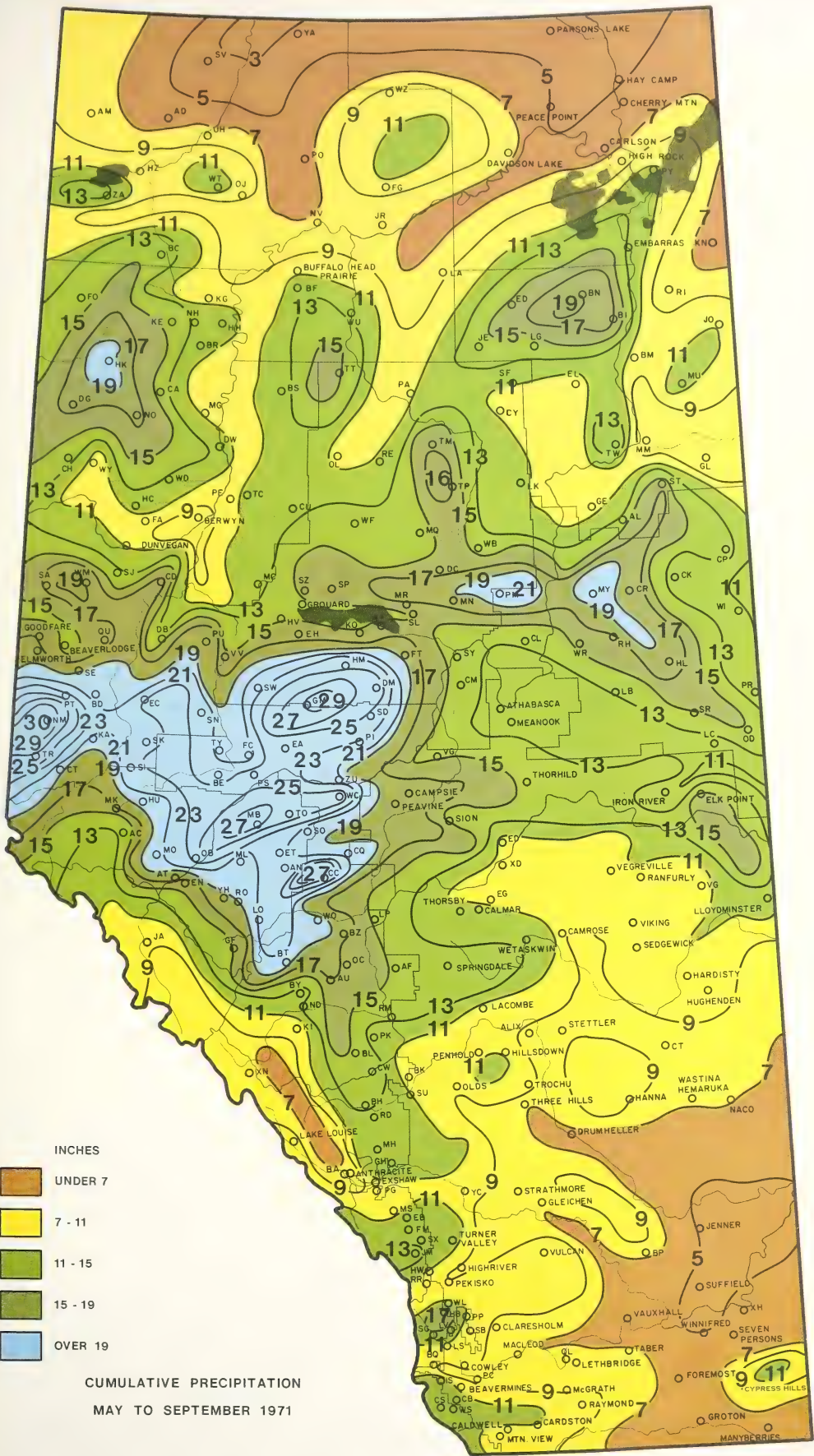
The Edson, Whitecourt, southern Slave Lake and Grande Prairie Forests were unusually wet and, when it is considered that the bulk of this precipitation fell in June and the first half of July, it comes as no surprise that rivers and creeks overflowed their banks, extensively flooding the Swan River and Paddle River settlements in July.

The 30" total at Nose Mountain in the Grande Prairie Forest got an additional boost when 40" of wet snow fell within five days in September. Following closely are the 27" totals at Mayberne and Carrot Creek Lookouts and the 29" total at Goose Mountain Lookout, all in the Whitecourt and Edson Forests. Secondary wet spots of 21" occurred at Pelican Mountain and May Lookouts with slightly lower 19" wet spots at Hotchkiss, White Mountain, and Buckton Lookouts. A series of closely spaced cold lows in June and July accounted for most of the unusual rainfall amounts.

The sharp contrast between precipitation over the major river valleys and higher surrounding terrain is very evident in the northern half of the province. In this particular instance, all the river valley precipitation totals were near normal, but over the adjacent surrounding terrain they were sharply above normal. This illustrates the need for a relatively dense precipitation network and equally detailed map analysis to properly describe the complex variability often found within a single Forest region.

ALBERTA CUMULATIVE WET SPOT: 29.8" at Nose Mountain, Grande Prairie Forest

ALBERTA CUMULATIVE DRY SPOT: 3.5" at Steen Lookout, Footner Lake Forest



COMMENTS ON NORMAL CUMULATIVE PRECIPITATION

Normally the cumulative May - September precipitation exhibits three major groupings:

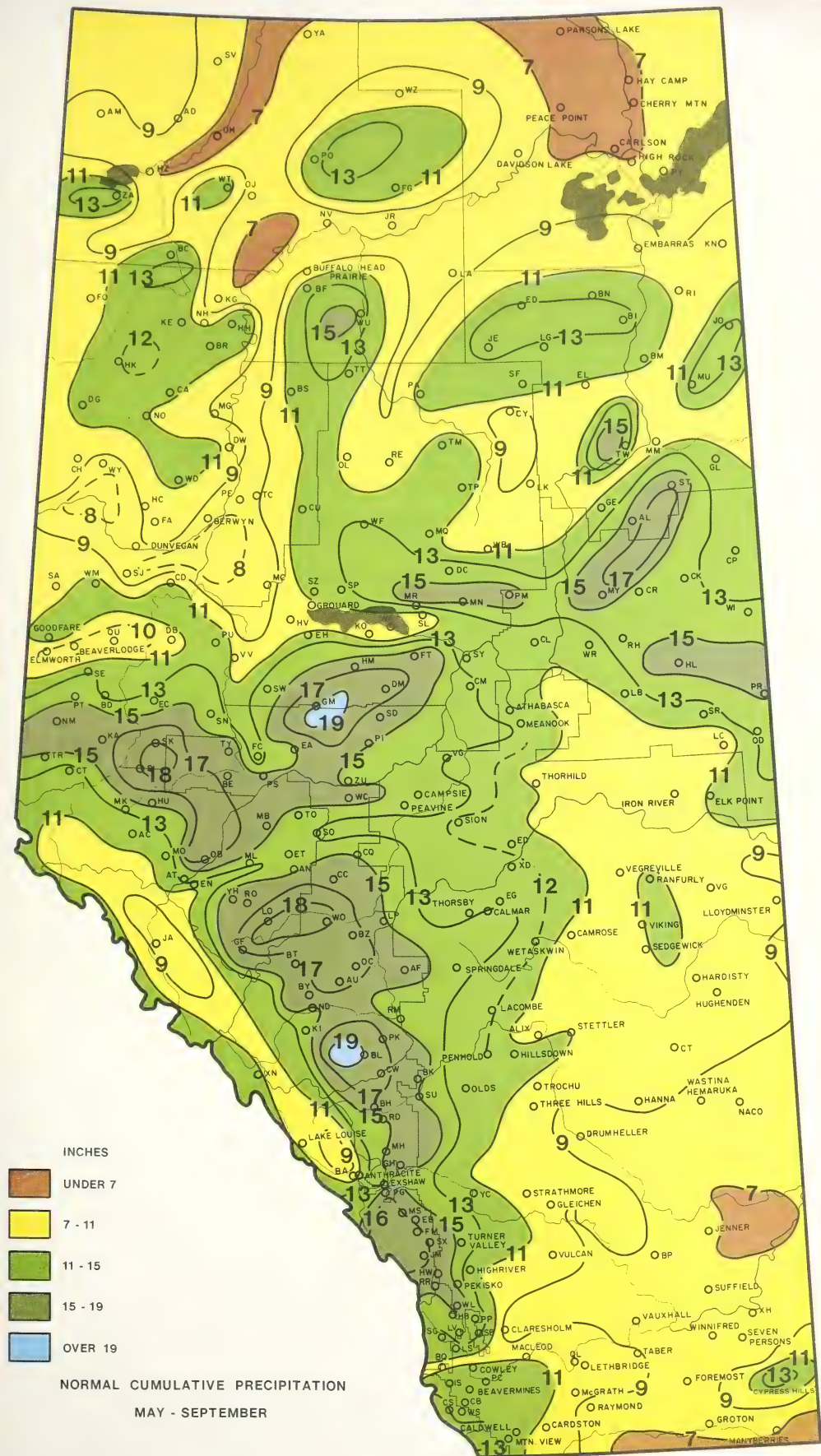
1. The dry to fairly dry southeastern plains area.
2. The heavier precipitation over the forested middle of the province with its narrow southward jut along the forested foothills.
3. The dry to fairly dry lower terrain in the northern one-third of the province.

Two other noteworthy features are the rain shadow areas from Jasper to Banff and the strong influence of topography over the entire province, with its relatively wet hills and plateaus and much drier adjacent lower terrain. The higher mountain lookouts report somewhat less precipitation than the lower foothills immediately to the east. This is largely due to a semi-permanent band of strong Chinook subsidence just to the lee of the Rockies and its suppressive effect on thunderstorm development at the Divide. These generally intensify in their eastward or northeastward progression.

During the period from May to September several deep upslope rainstorms with persistent northeast to east winds dump considerable precipitation over the higher foothills terrain but relatively little over the lower plains areas. This effect is especially noticeable over the Bow River - Crowsnest foothills during the month of June and, to a lesser degree, in May and September. This explains the obvious precipitation gradient from west to east over the southern half of the province. Deep upslope circulation over Bow River - Crowsnest Forests is exceedingly rare in July and August (they are dry months) but can occur further northward in essentially any month.

ALBERTA NORMAL CUMULATIVE WET SPOTS: 19.0" at Goose Mountain
Lookout, Whitecourt Forest
19.0" at Baseline Lookout,
Rocky Forest

ALBERTA NORMAL CUMULATIVE DRY SPOTS: 6.8" at Meander River,
Footner Lake Forest
(6 year short term record)
7.1" at Manyberries (30
year record)



SUMMARY OF CUMULATIVE (MAY - SEPTEMBER) PRECIPITATION
ABNORMALITY, 1971

This map illustrates the impossibility of any single description (such as wet, dry, normal) applying universally to the province as a whole, even with 5 months of precipitation included. While the middle of the province had considerably above normal precipitation, the northern and southern extremities had areas considerably below normal. Cumulative precipitation varied anywhere from 60% below normal to 90% above normal.

The least variation in abnormality was over the southern foothills and most of the agricultural plains area where most portions experienced about 25% below normal precipitation.

The greatest variation in abnormality was north of the Peace River - Fort McMurray line where precipitation varied from near normal to 50% above normal to 50% below normal. The above normal stretches generally occurred over higher terrain or displaced slightly downstream from the higher terrain. The northern extremities of the Footner Lake and Wood Buffalo Forests were conspicuously dry (50% to 60% below normal).

The wet forested regions in the middle of the province experienced 25% to 90% above normal precipitation for the five month period, the wettest areas falling into the Edson - Whitecourt, and Grande Prairie Forests.

ALBERTA MOST ABNORMALLY WET SPOTS: +90% at Nose Mountain and
Torrens Lookouts, Grande
Prairie Forest

ALBERTA MOST ABNORMALLY DRY SPOT: -60% at Steen Lookout,
Footner Lake Forest

